

**VI. ROOSEVELT IRRIGATION DISTRICT**

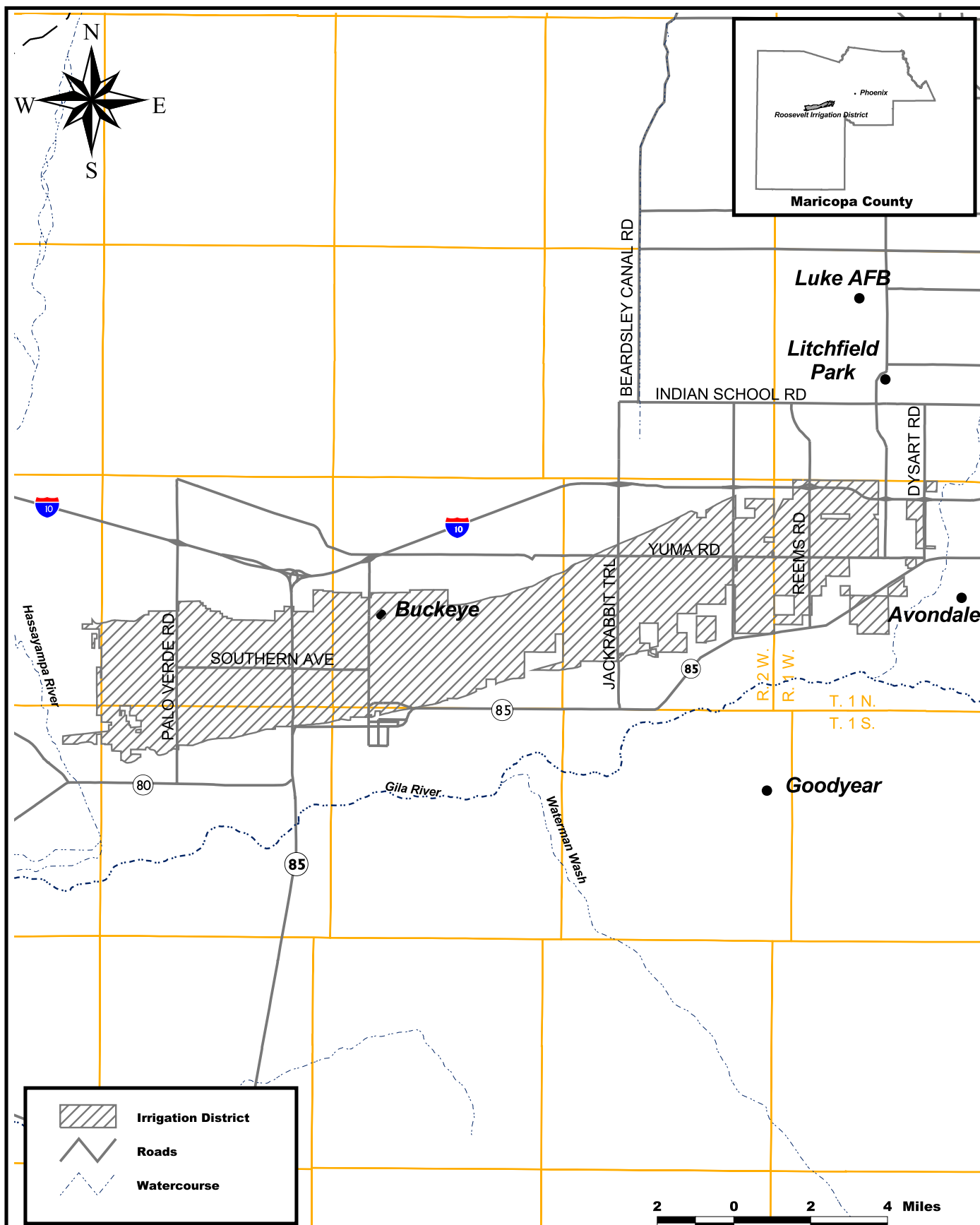
The Roosevelt Irrigation District (RID) was formed in 1923. The District is served by 50 miles of main canals and 136 miles of laterals, mostly concrete-lined. The collector canals in the Tolleson area are connected to the District main canal by a 108-inch diameter inverted siphon under the Agua Fria River. Water is pumped from 104 operating wells, of which 54 are located in the Tolleson or Salt River Project area, and 50 are located in the District. Figure L-NIA-12 shows the general location of the RID.

In 1998 the RID service area, a total of 140,615 af of water was produced and delivered. Of that total, 110,598 af, or 79 percent, was from groundwater, and 30,018 af, or 21 percent, was from spillwater.

**VI.A. CAP Water Allocation History**

RID was originally allocated 2.61 percent of the available NIA pool in the 1983 CAP allocations. RID was to be offered an increased allocation of 5.06 percent of the NIA pool. This reallocation process was never completed. Under Non-Settlement Alternative 3A, RID would be offered and would accept an allocation of the available NIA CAP water supply. For purposes of analysis only, this percentage amount has been converted to 6,122 afa. That CAP water would be delivered for a 50-year contract period (i.e., from 2001-2051) on an as-available basis, with less water anticipated as being available later in time. The CAP water would be used to supplement water supply demands over the next 50 years and would help reduce the continuing dependence on pumping groundwater from an overdrafted groundwater system. Under all the other alternatives, RID would not receive an additional allocation. It should be noted that, even without an allocation, CAP water will continue to be available to RID from the Ag Pool, which is comprised of excess water. Under the Settlement Alternative, RID would receive 2.31 percent of the Ag Pool. Under all other alternatives, RID would not receive a percent of the Ag Pool. Table L-NIA-22 outlines the proposed CAP allocation by alternative.

<b>Table L-NIA-22</b> <b>CAP Allocation Draft EIS</b> <b>Roosevelt ID – Proposed Additional CAP Allocation</b>		
<b>Alternative</b>	<b>Additional Allocation<sup>a</sup> (in afa)</b>	<b>Priority</b>
Settlement Alternative	0	-
No Action	0	-
Non-Settlement Alternative 1	0	-
Non-Settlement Alternative 2	0	-
Non-Settlement Alternative 3A	6,122 <sup>(b)</sup>	NIA
Non-Settlement Alternative 3B	0	-
Existing CAP Allocation	0	NIA
<b>Notes:</b> <sup>a</sup> All NIA allocations are percentages of the available NIA CAP water supply. They are converted to fixed af amounts only for ease of calculation in the draft EIS. See Appendix B for the calculation of NIA allocation numbers. <sup>b</sup> This allocation is Roosevelt ID's calculated percentage from the uncontracted NIA pool.		



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# **CAP Allocation Draft EIS General Location Map Roosevelt Irrigation District**

Figure #L-NIA-12

**VI.B. Water Demand and Supply Quantities**

RID contains 38,000 CAP-eligible acres. No new net acreage can be brought into production as a result of the 1980 GMA. Currently, RID uses CAP water. RID pumps 139,165 afa of groundwater. This water use pattern is based on a five-year average from 1998 to 1995. This water use pattern could change if acreage is taken out of production due to economic reasons or urbanization. Reductions in total water use reflect reductions in farmed acres due to water costs or the lack of access to CAP water.

In order to estimate impacts for the next fifty years, assumptions were made regarding the availability and pricing of CAP water for each alternative. These assumptions are fully described in Appendix A, Background Assumptions. Using the CAP water availability as a base, a model was developed (as described in Appendix D, Socioeconomic Analysis) to project water use and the number of cropped acres based on economic decisions. For example, the economic model predicts whether or not wheat will be grown based on the marginal costs of growing wheat given the prices and the availability of water. The water uses projected by the economic model were incorporated into the groundwater model to verify RID's ability to pump and afford the projected groundwater to be used. Acreage was also decrease based on urbanization due to population growth.

**VI.C. Specific Construction-Related Impacts**

No new water delivery facilities would be required. CAP water can be delivered to RID lands through existing SRP or MWD facilities.

**VI.D. Environmental Effects**

Since construction of water delivery facilities would not likely be required, the primary environmental impacts to RID would result from the availability of CAP water and its costs under the different alternatives.

**VI.D.1. Land Use**

Table L-NIA-23 shows the land use pattern for years 2001 to 2051 within the RID area. Approximately 28,300 acres are projected to be urbanized during the study period. No land is projected to be retired and fallowed due to farm economics.

<b>Table L-NIA-23</b> <b>CAP Allocation Draft EIS</b> <b>Roosevelt ID – Projected Agricultural Land Use</b> <b>(Acres)</b>				
<b>Alternative</b>	<b>Year</b>	<b>Land Farmed</b>	<b>Land Urbanized Per Time Step</b>	<b>Land Fallowed Due to Economic Reasons per Time Step</b>
Settlement Alternative	2001	26,065	0	0
	2004	24,232	1,833	0
	2017	20,073	4,159	0
	2030	9,718	10,355	0
	2043	3,190	6,528	0
	2051	0	5,431	0
No Action	2001	26,065	0	0
	2004	24,232	1,833	0
	2017	20,073	4,159	0
	2030	9,718	10,355	0
	2043	3,190	6,528	0
	2051	0	5,431	0
Non-Settlement Alternative 1	2001	26,065	0	0
	2004	24,232	1,833	0
	2017	20,073	4,159	0
	2030	9,718	10,355	0
	2043	3,190	6,528	0
	2051	0	5,431	0
Non-Settlement Alternative 2	2001	26,065	0	0
	2004	24,232	1,833	0
	2017	20,073	4,159	0
	2030	9,718	10,355	0
	2043	3,190	6,528	0
	2051	0	5,431	0
Non-Settlement Alternative 3A	2001	26,065	0	0
	2004	24,232	1,833	0
	2017	20,073	4,159	0
	2030	9,718	10,355	0
	2043	3,190	6,528	0
	2051	0	5,431	0
Non-Settlement Alternative 3B	2001	26,065	0	0
	2004	24,232	1,833	0
	2017	20,073	4,159	0
	2030	9,718	10,355	0
	2043	3,190	6,528	0
	2051	0	5,431	0

**VI.D.2. Archaeological Resources**

No large block surveys have taken place, and very few sites have been recorded within the project area. Given the sparse survey coverage, it is possible that undocumented sites could be present within the entity's boundaries. Site types known to occur within the surrounding White Tanks-Hassayampa region range from small lithic scatters of unknown affiliations to large Hohokam villages associated with canal systems (Gladwin and Gladwin 1929, 1930; Johnson 1963; Midvale 1920-1971; Turney 1929). Other possible site types include Patayan and Yavapai shard scatters, rock rings, petroglyphs, and rockshelters. Historic roads, canals, and sites associated with mining also are possible. It is not known whether this entity has a local historical preservation program. Cultural resource sensitivity areas in this entity are shown in Figure L-NIA-13. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in this entity is low. Urbanization of farmlands could impact cultural/deposits that might be preserved below the plow zone. Mitigation for these potential impacts would be determined by local jurisdictions. No impacts to cultural resources are expected from land fallowing.

**VI.D.3. Biological Resources**

Table L-NIA-23 shows land use over the period of study by alternative. Land stays in agricultural production or is converted to urban use. When conversion of agricultural lands to urban use occurs, loss of natural habitat or wildlife is minimal. However, adjacent lands may contain wildlife that might be impacted such as burrowing owls, nests of local birds, and habitat for small mammals.

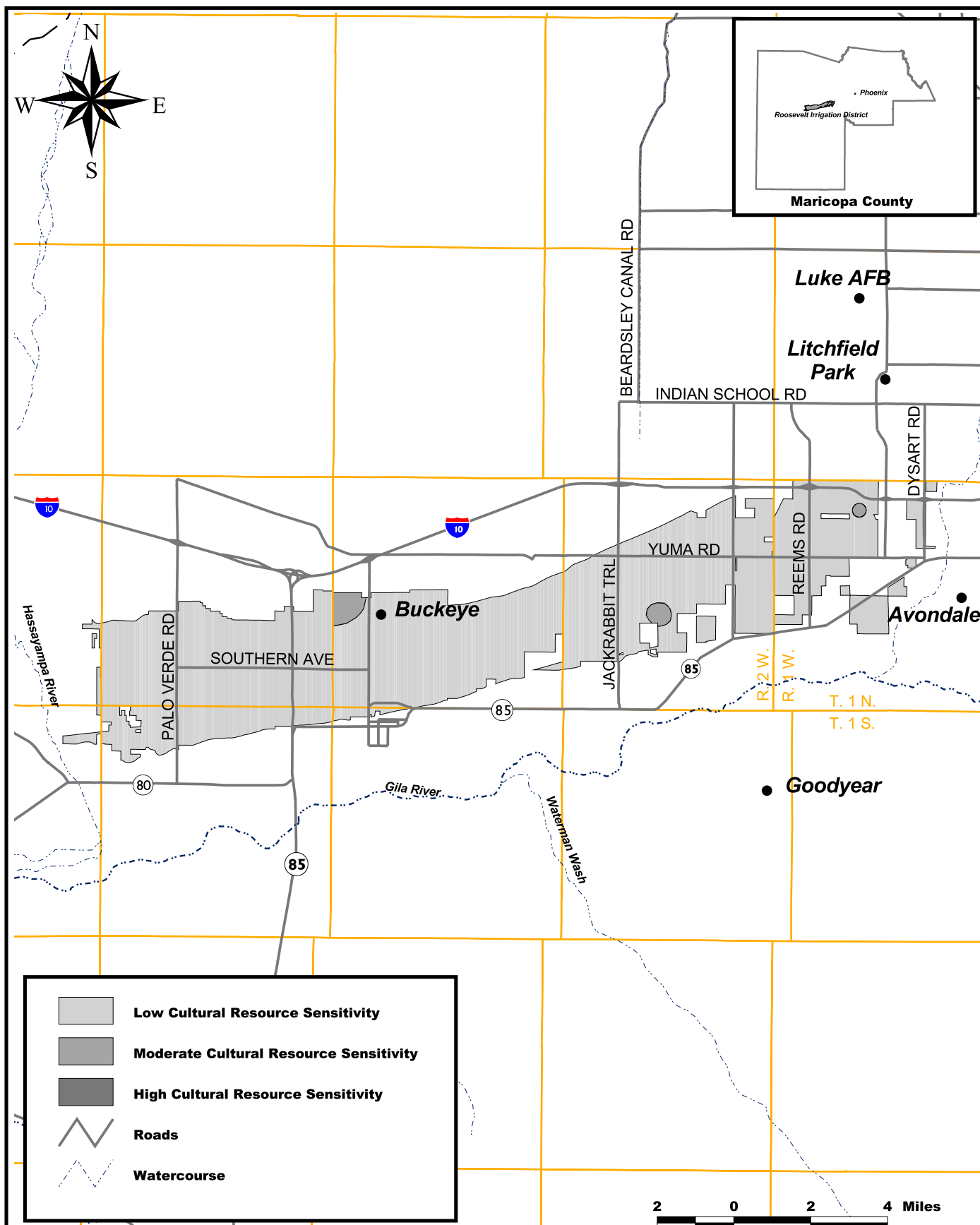
**VI.D.4. Water Resources**

RID has met historical irrigation demands using groundwater. Groundwater levels have declined historically in response to the groundwater pumping. The TDS concentration of groundwater ranges generally from about 1,000 to 3,000 ppm.

Presented in Table L-NIA-24 are estimated changes in groundwater levels from 2001 to 2051. Estimated groundwater level impacts for each alternative (changes from levels under the No Action Alternative) are also shown. Groundwater conditions were estimated in the analysis for three areas that include RID, and the values shown represent conditions from east to west in RID. Estimated groundwater level changes are larger in the western part of RID, although the changes relative to the No Action Alternative are similar (less than 10 feet) throughout RID.

Under the No Action Alternative, groundwater levels would rise throughout RID over the 2001 to 2051 period. These groundwater levels are influenced by recharge in the Gila River. The higher groundwater levels would result in a reduction in groundwater pumping costs. Subsidence and groundwater quality impacts would not be anticipated.

Groundwater levels under the Settlement Alternative and all Non-Settlement Alternatives would also rise by year 2051. The relatively small differences in groundwater levels primarily reflect differences in the availability of CAP water to RID and changes in underflow to adjacent areas. As with the No Action Alternative, the higher groundwater levels would result in a



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# **CAP Allocation Draft EIS** **Cultural Resources** **Roosevelt Irrigation District**

Figure #L-NIA-13

reduction in groundwater pumping costs, and subsidence and groundwater quality impacts would not be anticipated.

<b>Table L-NIA-24</b> <b>CAP Allocation Draft EIS</b> <b>RID – Groundwater Data Table</b>		
<b>Alternative</b>	<b>RID*</b>	
	<b>Estimated Groundwater Level Change from 2001-2051 (in feet)</b>	<b>Groundwater Level Impact** (in feet)</b>
No Action	35/52/55	--
Settlement Alternative	28/50/55	-6/-1/0
Non-Settlement Alternative 1	36/57/55	1/5/0
Non-Settlement Alternative 2	31/49/55	-3/-3/0
Non-Settlement Alternative 3A	26/47/55	-9/-4/0
Non-Settlement Alternative 3B	32/51/55	-3/0/0
* Values correspond to the Avondale, East Buckeye, and West Buckeye sub-areas, respectively. ** Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.		

#### VI.D.5. Socioeconomic

RID was excluded in the economic analysis because no change in output associated with water price is projected to occur. Groundwater pumping costs in RID are sufficiently low so that farmers' total water costs do not become too costly for the cultivation of certain crops even when availability of CAP excess water declines. Therefore, no socioeconomic impacts associated with the CAP reallocation strategies analyzed in this EIS were analyzed for this irrigation district.